

$$X = \frac{L_1 - (b/a)(L_1) - L_2}{(b/a) + (L_4/L_R)}$$

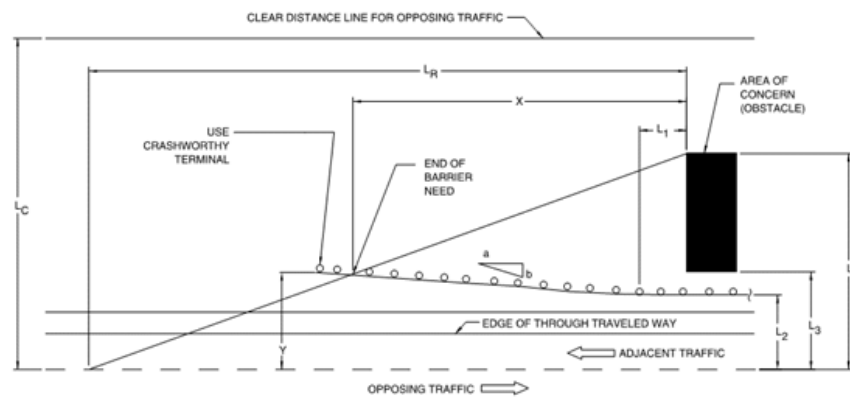
Figure 5-39. Approach Barrier Layout Variables

APPROACH GUARDRAIL BARRIER EVALUATION

ID	APPROX MILEPOST	OFFSET	STA	TO	STA	LENGTH (FT)	SPEED LIMIT (MPH)	LC - REQUIRED CLEAR ZONE (TABLE 3-1)	LR - RUNOUT LENGTH (TABLE 5.10b)	LA - EDGE LINE TO BACK OF WARRANTING FEATURE	L2 - EDGE LINE TO FACE OF BARRIER	X - LENGTH OF NEED (CALC EQN.5-2)	X EXISTING LENGTH OF NEED MEASURED	DEFLECTION DISTANCE 5' MIN CHECK (NOTE 3 NMDOT STD DWG 606-GR31-16/20)	EXISTING END CONDITIONS	REQUIRED END SECTION (MASH)	EXISTING HEIGHT (PAVEMENT TO GR)	REQUIRED HEIGHT GROUND LINE TO TOP W BEAM REQ. (MASH TEST 3-11)	RESPONSE
1	159.00	RT	1040+56.77		1043+28.75	272	55	24	185	22	12	84.1	170	4.00	FLEAT	TYPE 3 NMDOT	32.25	31"	
2	159.01	LT	1041+60.82		1044+34.36	274	55	24	185	24	13.7	79.4	160	7.50	FLEAT	TYPE 3 NMDOT	31.75	31"	
3	160.61	RT	1126+38.66		1129+62.92	324	55	24	185	24	12.7	87.1	174	4.70	FLEAT	TYPE 3 NMDOT	31.25	31"	
4	160.63	LT	1127+39.34		1130+60.3	321	55	24	185	24	11.2	98.7	157	6.615	FLEAT	TYPE 3 NMDOT	31.75	31"	
5	160.84	RT	1138+50.5		1141+87.38	337	55	24	185	24	13.9	77.9	155	4.36	FLEAT	TYPE 3 NMDOT	31.25	31"	
6	160.85	LT	1139+31.56		1142+78.41	347	55	24	185	24	11.3	97.9	167	5.31	FLEAT	TYPE 3 NMDOT	32	31"	
7	161.21	RT	1157+98.85		1161+22.11	323	55	24	185	24	12.6	87.9	164	4.10	FLEAT	TYPE 3 NMDOT	31.25	31"	ASPHALT CURB BEHIND GR POSTS
8	161.22	LT	1158+78.84		1162+01.2	322	55	24	185	24	12.1	91.7	144	5.37	FLEAT	TYPE 3 NMDOT	32.5	31"	
9	161.42	RT	1169+21.88		1171+94.73	273	55	24	185	24	10	107.9	175	12.48	FLEAT	TYPE 3 NMDOT	29.75	31"	
10	161.43	LT	1170+03.82		1172+76.77	273	55	24	185	24	9.4	112.5	141	13.56	FLEAT	TYPE 3 NMDOT	29.75	31"	
11	161.94	RT	1196+63.5		1199+39.7	276	65	34	250	34	7.5	194.9	218	NA	FLEAT	TYPE 3 NMDOT	26.75	31"	CONNECT TO BRIDGE RIGID BARRIER
12	162.08	LT	1203+98.9		1206+75.7	277	65	34	250	34	8.6	186.8	262.5	NA	FLEAT	TYPE 3 NMDOT	26.5	31"	CONNECT TO BRIDGE RIGID BARRIER
13	162.19	RT	1209+88.73		1214+10.63	422	65	34	250	34	6.6	201.5	281.57	26	FLEAT	TYPE 3 NMDOT	32.5	31"	
14	162.20	LT	1210+70.3		1214+91.84	422	65	34	250	34	10.2	175.0	277	23.75	FLEAT	TYPE 3 NMDOT	31.25	31"	
15	165.38	RT	1378+36.53		1382+58.69	422	65	34	250	28	4.7	208.0	246	THRIE BEAM	FLEAT	TYPE 3 NMDOT	31	31"	THRIE BEAM AT DRAINAGE PROTECTION STRUCTURE SYSTEM
16	165.40	LT	1379+52.02		1383+74.41	422	65	34	250	30.3	8	184.0	245	THRIE BEAM	FLEAT	TYPE 3 NMDOT	31.25	31"	THRIE BEAM AT DRAINAGE PROTECTION STRUCTURE SYSTEM
17	166.56	RT	1440+46.85		1444+68.87	422	65	34	250	15.3	5.4	161.8	252	THRIE BEAM	FLEAT	TYPE 3 NMDOT	31.25	31"	THRIE BEAM AT DRAINAGE PROTECTION STRUCTURE SYSTEM
18	166.59	LT	1441+66.14		1445+88.18	422	65	34	250	18.6	6.5	162.6	243	THRIE BEAM	FLEAT	TYPE 3 NMDOT	31.25	31"	THRIE BEAM AT DRAINAGE PROTECTION STRUCTURE SYSTEM
19	167.27	RT	1478+03.97		1482+13.86	410	65	34	250	17.17	6.85	150.3	244	THRIE BEAM	FLEAT	TYPE 3 NMDOT	32.5	31"	THRIE BEAM AT DRAINAGE PROTECTION STRUCTURE SYSTEM
20	167.30	LT	1479+16.91		1483+25.48	409	65	34	250	14.75	4.65	171.2	243	THRIE BEAM	FLEAT	TYPE 3 NMDOT	31	31"	THRIE BEAM AT DRAINAGE PROTECTION STRUCTURE SYSTEM
21	167.50	RT	1490+06.16		1494+14.28	408	65	34	250	17.6	7.2	147.7	254	7.5	FLEAT	TYPE 3 NMDOT	31.25	31"	THRIE BEAM AT DRAINAGE PROTECTION STRUCTURE SYSTEM
22	167.52	LT	1491+18.32		1495+27.28	409	65	34	250	15.2	5.2	164.5	242	6.42	FLEAT	TYPE 3 NMDOT	31.75	31"	
23	167.68	RT	1499+64.72		1504+23.62	459	65	34	250	34	6.9	199.3	248	THRIE BEAM	FLEAT	TYPE 3 NMDOT	31.75	31"	THRIE BEAM NEEDS TO BE FIELD CONFIRMED NEW CONSTRUCTION ON BOX CULVERT
24	167.71	LT	1500+83.44		1505+42.52	459	65	34	250	34	5.5	209.6	232.87	THRIE BEAM	FLEAT	TYPE 3 NMDOT	31.25	31"	THRIE BEAM NEEDS TO BE FIELD CONFIRMED NEW CONSTRUCTION ON BOX CULVERT
25	191.95	RT	2780+69.06		2785+65.8	497	65	34	250	29.8	8.5	178.7	307.3	7.8	FLEAT	TYPE 3 NMDOT	33.25	31"	
26	191.98	LT	2782+25.24		2788+71.9	647	65	34	250	30.9	8.4	182.0	447.4	10.5	FLEAT	TYPE 3 NMDOT	33.25	31"	
27	193.97	RT	2887+77.7		2892+74.16	496	65	34	250	30.3	7.6	187.3	305.4	8.65	FLEAT	TYPE 3 NMDOT	32.75	31"	
28	194.00	LT	2889+33.93		2892+31.05	297	65	34	250	28.9	8.4	177.3	102	7.9	FLEAT	TYPE 3 NMDOT	32.5	31"	TURNOUT RESTRICTS LENGTH REQUIRED RECOMMEND REBUILD TURNOUT OR CURVED GUARDRAIL DETAILS
29	194.78	RT	2930+71.06		2935+68.45	497	65	34	250	31.77	8.4	183.9	305.4	9.97	FLEAT	TYPE 3 NMDOT	32.25	31"	
30	194.81	LT	2932+18.01		2938+65.44	647	65	34	250	28.95	8.5	176.6	444	8.73	FLEAT	TYPE 3 NMDOT	32	31"	
31	196.67	RT	3030+70.79		3036+98.16	627	65	34	250	27.32	11.7	142.9	348	THRIE BEAM	FLEAT	TYPE 3 NMDOT	31	31"	THRIE BEAM AT DRAINAGE PROTECTION STRUCTURE SYSTEM No Asphalt Pad, off the shoulder
32	196.70	LT	3032+18.08		3038+45.25	627	65	34	250	27.95	9.73	163.0	348	THRIE BEAM	FLEAT	TYPE 3 NMDOT	30.25	31"	THRIE BEAM AT DRAINAGE PROTECTION STRUCTURE SYSTEM No Asphalt Pad, off the shoulder
33	199.33	RT	3170+61.37		3175+64.9	504	65	34	250	29.6	9.06	173.5	305	10.4	FLEAT	TYPE 3 NMDOT	28.75	31"	No Asphalt Pad, off the shoulder
34	199.36	LT	3172+11.1		3177+12.44	501	65	34	250	30.6	10.48	164.4	303	10.86	FLEAT	TYPE 3 NMDOT	29.25	31"	No Asphalt Pad, off the shoulder
35	199.68	LT	3189+14.82		3194+16.15	501	65	34	250	34	10.3	174.3	294	10.65	FLEAT	TYPE 3 NMDOT	27.25	31"	CATTLE UNDERPASS CROSSING, POTENTIAL CURVED ROADSIDE BARRIER
36	199.69	RT	3189+42.47		3192+72.22	330	65	34	250	36	9.84	181.7	119	8.31	FLEAT	TYPE 3 NMDOT	28.25	31"	
37	218.38	RT	4180+36.71		4184+89.08	452	65	34	250	30	10.3	164.2	201	THRIE BEAM	FLEAT	TYPE 3 NMDOT	28.25	31"	THRIE BEAM AT DRAINAGE PROTECTION STRUCTURE SYSTEM 3" Asphalt Overlay in front of Guardrail
38	218.41	LT	4181+52.4		4184+66.97	315	65	34	250	28.1	9.7	163.7	177	THRIE BEAM	FLEAT	TYPE 3 NMDOT	28.5	31"	THRIE BEAM AT DRAINAGE PROTECTION STRUCTURE SYSTEM 3" Asphalt Overlay in front of Guardrail

OPPOSING TRAFFIC GUARDRAIL EVALUATIONS

APPROX MILEPOST	OFFSET	STA	TO	STA	LENGTH (FT)	SPEED LIMIT (MPH)	LC - REQUIRED CLEAR ZONE (TABLE 3-1)	LR - RUNOUT LENGTH (TABLE 5.10)	LA - CENTERLINE TO CZ OR BACK OF HAZARD	L2 - EDGE LINE TO FACE OF BARRIER	X - REQ MIN LENGTH OF NEED (CALC EQN.5-2)	X - EXISTING LENGTH OF NEED, FIELD MEASURED	EXISTING END CONDITIONS	RESPONSES
159.00	RT	1040+56.77		1043+28.75	272	55	24	220	33.1	22.9	68.2	55	EXTRUDER TERMINAL (ET-PLUS)	
159.01	LT	1041+60.82		1044+34.36	274	55	24	220	36	27.2	53.8	67	EXTRUDER TERMINAL (ET-PLUS)	
160.61	RT	1126+38.66		1129+62.92	324	55	24	220	36	23.9	73.7	58	EXTRUDER TERMINAL (ET-PLUS)	
160.63	LT	1127+39.34		1130+60.3	321	55	24	220	36	21.5	88.9	71	EXTRUDER TERMINAL (ET-PLUS)	
160.84	RT	1138+50.5		1141+87.38	337	55	24	220	36	26	61.1	75	EXTRUDER TERMINAL (ET-PLUS)	
160.85	LT	1139+31.56		1142+78.41	347	55	24	220	36	22.6	81.9	78	EXTRUDER TERMINAL (ET-PLUS)	
161.21	RT	1157+98.85		1161+22.11	323	55	24	220	36	24.9	67.8	65	EXTRUDER TERMINAL (ET-PLUS)	
161.22	LT	1158+78.84		1162+01.2	322	55	24	220	36	23.6	75.8	90	EXTRUDER TERMINAL (ET-PLUS)	
161.42	RT	1169+21.88		1171+94.73	273	55	24	220	36	22.6	81.9	64	EXTRUDER TERMINAL (ET-PLUS)	
161.43	LT	1170+03.82		1172+76.77	273	55	24	220	36	21.6	88.0	93	EXTRUDER TERMINAL (ET-PLUS)	
161.96	LT	1197+75.76		1199+42.69	167	65	34	290	46	19	170.2	154	EXTRUDER TERMINAL (ET-PLUS)	CONNECTION TO RIGID BARRIER BRIDGE CROSSING
162.08	RT	1203+99.88		1205+63.	163	65	34	290	46	19.7	165.8	142	EXTRUDER TERMINAL (ET-PLUS)	CONNECTION TO RIGID BARRIER BRIDGE CROSSING
162.19	RT	1209+88.73		1214+10.63	422	65	34	290	46	18.4	174.0	111	EXTRUDER TERMINAL (ET-PLUS)	
162.20	LT	1210+70.3		1214+91.84	422	65	34	290	46	22	151.3	115	EXTRUDER TERMINAL (ET-PLUS)	
165.38	RT	1378+36.53		1382+58.69	422	65	34	290	43	16	182.1	131	EXTRUDER TERMINAL (ET-PLUS)	
165.40	LT	1379+52.02		1383+74.41	422	65	34	290	43	20.7	150.4	131	EXTRUDER TERMINAL (ET-PLUS)	
166.56	RT	1440+46.85		1444+68.87	422	65	34	290	27	16.5	112.8	128	EXTRUDER TERMINAL (ET-PLUS)	
166.59	LT	1441+66.14		1445+88.18	422	65	34	290	32	19.24	115.6	131	EXTRUDER TERMINAL (ET-PLUS)	
167.27	RT	1478+03.97		1482+13.86	410	65	34	290	29	18.65	103.5	131	EXTRUDER TERMINAL (ET-PLUS)	
167.30	LT	1479+16.91		1483+25.48	409	65	34	290	27	17.4	103.1	131	EXTRUDER TERMINAL (ET-PLUS)	
167.50	RT	1490+06.16		1494+14.28	408	65	34	290	29	17.8	112	128	EXTRUDER TERMINAL (ET-PLUS)	
167.52	LT	1491+18.32		1495+27.28	409	65	34	290	27	18.1	95.6	132	EXTRUDER TERMINAL (ET-PLUS)	
167.68	RT	1499+64.72		1504+23.62	459	65	34	290	45	18.1	173.4	117.2	EXTRUDER TERMINAL (ET-PLUS)	
167.71	LT	1500+83.44		1505+42.52	459	65	34	290	46.6	18.1	177.4	117	EXTRUDER TERMINAL (ET-PLUS)	
191.95	RT	2780+69.06		2785+65.8	497	65	34	290	40.2	21	138.5	142	EXTRUDER TERMINAL (ET-PLUS)	
191.98	LT	2782+25.24		2788+71.9	647	65	34	290	44.05	20.75	153.4	150	EXTRUDER TERMINAL (ET-PLUS)	
193.97	RT	2887+77.7		2892+74.16	459	65	34	290	40.2	20.06	145.3	138	EXTRUDER TERMINAL (ET-PLUS)	
194.00	LT	2889+33.93		2892+31.05	459	65	34	290	38.2	20.6	133.6	147	EXTRUDER TERMINAL (ET-PLUS)	
194.78	RT	2930+71.06		2935+68.45	459	65	34	290	43.2	20.66	151.3	144	EXTRUDER TERMINAL (ET-PLUS)	
194.81	LT	2932+18.01		2938+65.44	459	65	34	290	41.3	20.1	148.9	156	EXTRUDER TERMINAL (ET-PLUS)	
196.67	RT	3030+70.79		3036+98.16	459	65	34	290	39.3	23.4	117.3	201	EXTRUDER TERMINAL (ET-PLUS)	
196.70	LT	3032+18.08		3038+45.25	459	65	34	290	43.1	21.4	146.0	199	EXTRUDER TERMINAL (ET-PLUS)	
199.33	RT	3170+61.37		3175+64.9	504	65	34	290	39.3	19.5	146.1	156	EXTRUDER TERMINAL (ET-PLUS)	
199.36	LT	3172+11.1		3177+12.44	501	65	34	290	41.1	23.2	126.3	154	EXTRUDER TERMINAL (ET-PLUS)	
199.68	LT	3189+14.82		3194+16.15	501	65	34	290	46	22.6	147.5	147	EXTRUDER TERMINAL (ET-PLUS)	
199.69	RT	3189+42.47		3192+72.22	330	65	34	290	46	19.8	165.2	156	EXTRUDER TERMINAL (ET-PLUS)	
218.38	RT	4180+36.71		4184+89.08	452	65	34	290	39	22.3	124.2	200	EXTRUDER TERMINAL (ET-PLUS)	
218.41	LT	4181+52.4		4184+66.97	315	65	34	290	44	23.08	137.9	85	EXTRUDER TERMINAL (ET-PLUS)	



$$X = \frac{L_H + (b/a)L_1 - L_2}{(b/a) + L_H/L_R}$$

Figure 5-42. Approach Barrier Layout for Opposing Traffic